

## REMARKS

In view of the above amendments and following remarks, reconsideration of the rejections that are contained in the Office Action of August 17, 2007 is respectfully requested.

In the Office Action, the Examiner rejected claims 1, 4 and 8 as being unpatentable over Morooka et al. (Morooka), JP 2003-222764 in view of Publication No. US 2002/0074086 to Nakamura et al. (Nakamura). Claims 2, 3, 5-7 and 9-20 were rejected in further view of Saito et al., JP 2003/149502. However, the references that have been cited by the Examiner do not properly disclose or provide any reason for their combination in a manner so as to result in the present invention.

As was discussed in the prior response, an object of the present invention is to provide an optical receptacle capable of maintaining high precision and reliability while having a small size with a small number of components and requiring a low production cost. In the optical receptacle according to the invention, a precision sleeve 12 or 22, for example, has a stub 14, for example, provided with an optical fiber fixed to one end of an inner hole of the precision sleeve through an adhesive 16. A sleeve holder is fixed to an outer periphery of the precision sleeve by press-fitting or through an adhesive, noting elements 13 and 23 in Figs. 1A and 1B, for example.

An outer periphery of the stub and/or the inner hole of the precision sleeve has a surface roughness ( $R_a$ ) value of 0.1  $\mu\text{m}$  or more and 0.5  $\mu\text{m}$  or less. With this limitation, an adhesive that is used to fix the stub to one end of an inner hole of the precision sleeve spreads uniformly across an outer periphery of the stub because of the surface properties with the above surface roughness limitation. Because of the uniform distribution, the stub is positioned at the center of the precision sleeve. Through such limitations, the stub is held stably and accurately at the center of the precision sleeve through the layer of adhesive, having a uniform thickness. Note the discussion in the specification at page 13, lines 4-14, for example.

Increasing the surface roughness  $R_a$  value of the outer periphery of the stub and the inner hole of the position sleeve to more than 0.5  $\mu\text{m}$  could significantly increase the  $R_y$  value (maximum roughness).

It is noted that by the above independent claim 1 has been amended to recite that the stub is fixed only to an inner hole of the precision sleeve, the stub being fixed to the inner hole of the precision sleeve through an adhesive. Noting for example Figs. 1A and 1B, it can be seen that the stub 14 is fixed at one end of the precision sleeve 12 or 22. There are no other parts to which the stub is fixed. This emphasizes the fact that the self alignment that takes place between the stub and the precision sleeve as discussed above, through the use of the adhesive in combination with the surface roughness limitation, is one that takes place between these two elements. No other elements are involved for the self alignment aspect.

The Examiner has cited Morooka as having a stub 3 with an optical fiber 1b inserted into one end of an inner hole of a precision sleeve 5. Note paragraph 22 describing the attachment. The sleeve 5 is fixed to the inner periphery of a sleeve case 6 by pressing fit or adhesion and the fiber stub 3 is fixed to the inner periphery of the holder 7. The sleeve case 6 is fitted to the holder 7, further. As discussed in the previous response, and as acknowledged by the Examiner, Morooka does not disclose fixing the stub 3 to the sleeve 5 through an adhesive. By contrast, in claim 1 the stub is required to be fixed to the inner hole of the precision sleeve through the adhesive. Further, the sleeve holder is fixed through the outer periphery of the precision sleeve by press fitting or through an adhesive.

The Examiner, in employing Morooka, refers to a sleeve holder 6/7. However, reference number 6 in Morooka is a reference to a sleeve case. Reference number 7 is in fact a holder in which the sleeve case 6, precision sleeve 5 and stub 3 are received. By contrast, in the present invention, the sleeve holder is fixed to the outer periphery of the precision sleeve.

In Morooka, in mounting the stub 3, as noted above, the fiber stub 3 is fixed with respect to the holder 7, noting again paragraph 22.

In view of the way that the arrangement of Morooka is assembled, the positional accuracy of the fiber stub 3 with respect to the precision sleeve 5 is inherently defined by the assembling accuracy of the fiber stub 3 inserted into the inner hole of the sleeve 5, the sleeve 5 fixed with respect to the inner periphery of the sleeve case 6 and the fiber stub 3 being fixed to the inner periphery of the holder 7. Thus, the arrangement and the manner of assembly does not permit for the self-

alignment aspect that is an aspect of the claimed invention. This is in part reflected by the above new limitation of reciting that the stub is fixed only to the inner hole of the precision sleeve.

The above deficiencies of Morooka are not cured by Nakamura. The Examiner cites Nakamura as teaching the fixing of an optical fiber ferrule 17 to a precision sleeve 15 through adhesive 28, referring to paragraph 82 and Fig. 8 of Nakamura.

In Fig. 8 of the Nakamura, there is disclosed an optical device having a lens 16 with a holder 13 fixed to a sleeve 15 through the agency of an adhesive 27. There is also a ferrule 17 having a fiber 22 adhered to the sleeve 15 through adhesive 28. However, the device of Nakamura is an optical collimator. It is a different type of device than that of the present invention or Morooka, and thus does not employ devices corresponding to those of a sleeve case 6 and a holder 7 as in Morooka, or the sleeve holder of the present invention.

The Examiner's cited reason for combining Morooka with Nakamura is that in paragraph 33 in Nakamura it is stated that the particular adhesive composition has excellent mechanical and physical strength, environmental resistance and heat resistance. This would be a reason to use the particular adhesive combination employed, but it is not a reason to provide an adhesive where none is required, as in Morooka.

That is, there is no reason for one of ordinary skill in the art to substitute the manner of fixation in Nakamura for that in Morooka. In Morooka, the fiber stub 3 is already fixed to the holder 7. It does not need to be further fixed to the sleeve 5. In addition, the positional accuracy of the fiber stub 3 in Morooka, with respect to the sleeve 5, is inherently defined by the assembling accuracy of the sleeve 5 with respect to the sleeve case 6, the fiber stub 3 with respect to the holder 7 and the sleeve case 6 with respect to the holder 7. The advantage of the present invention in having the combination of the adhesive and the surface roughness limitations is the self-alignment aspect. There is no teaching of this from these references and no recognition that such advantage might result. There is thus no reason why one of ordinary skill in the art would have attempted to the combination.

The distinction is even further emphasized in our reciting that the fiber stub is only fixed to the precision sleeve, which is not the case in Morooka.

Accordingly, it may be seen that there is in fact no reason to combine Morooka and Nakamura so as to arrive at the present invention. Nor are the advantages achieved by the present invention of a self-alignment of the fiber stub with respect to the precision sleeve achieved either. The above additional limitation to independent claim 1 further clearly defines over both Morooka and Nakamura, and further emphasizes these facts. Accordingly, indication of the allowability of claim 1 at this point is respectfully requested.

The additionally cited reference to Saito was discussed in the prior response, and all comments therein are incorporated herein by reference. In view of the clear distinctions between Morooka and Nakamura and claim 1, however, no further discussion of Saito is necessary at this point.

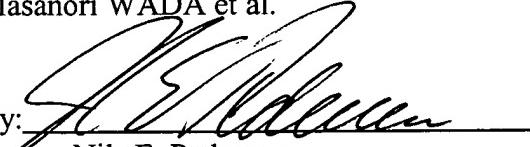
Indication of the allowability of all of the claims is accordingly further requested.

In view of the above amendments and remarks, it is submitted that the present application is now in condition for allowance, and the Examiner is requested to pass the case to issue. If the Examiner should have any comments or suggestions to help speed the prosecution of this application, the Examiner is requested to contact Applicants' undersigned representative.

Respectfully submitted,

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